

FIG. 1

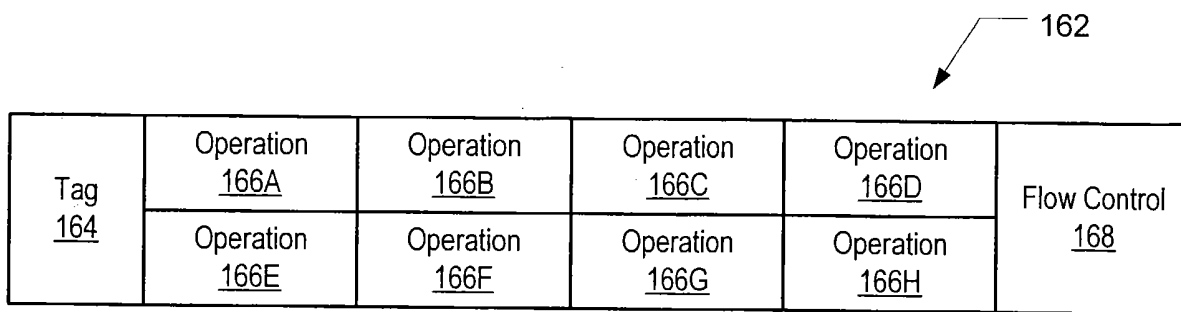


FIG. 2A

Liveness	Encoding 266
Unconditionally Live	11
Subsequent to 1st Branch	10
Subsequent to 2nd Branch	01
Unconditionally Dead	00

FIG. 2B

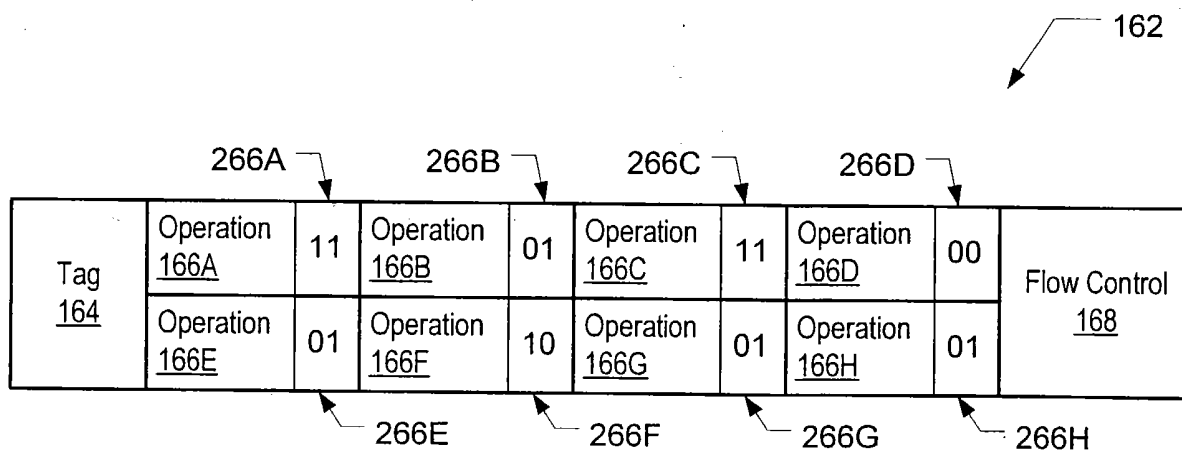


FIG. 2C

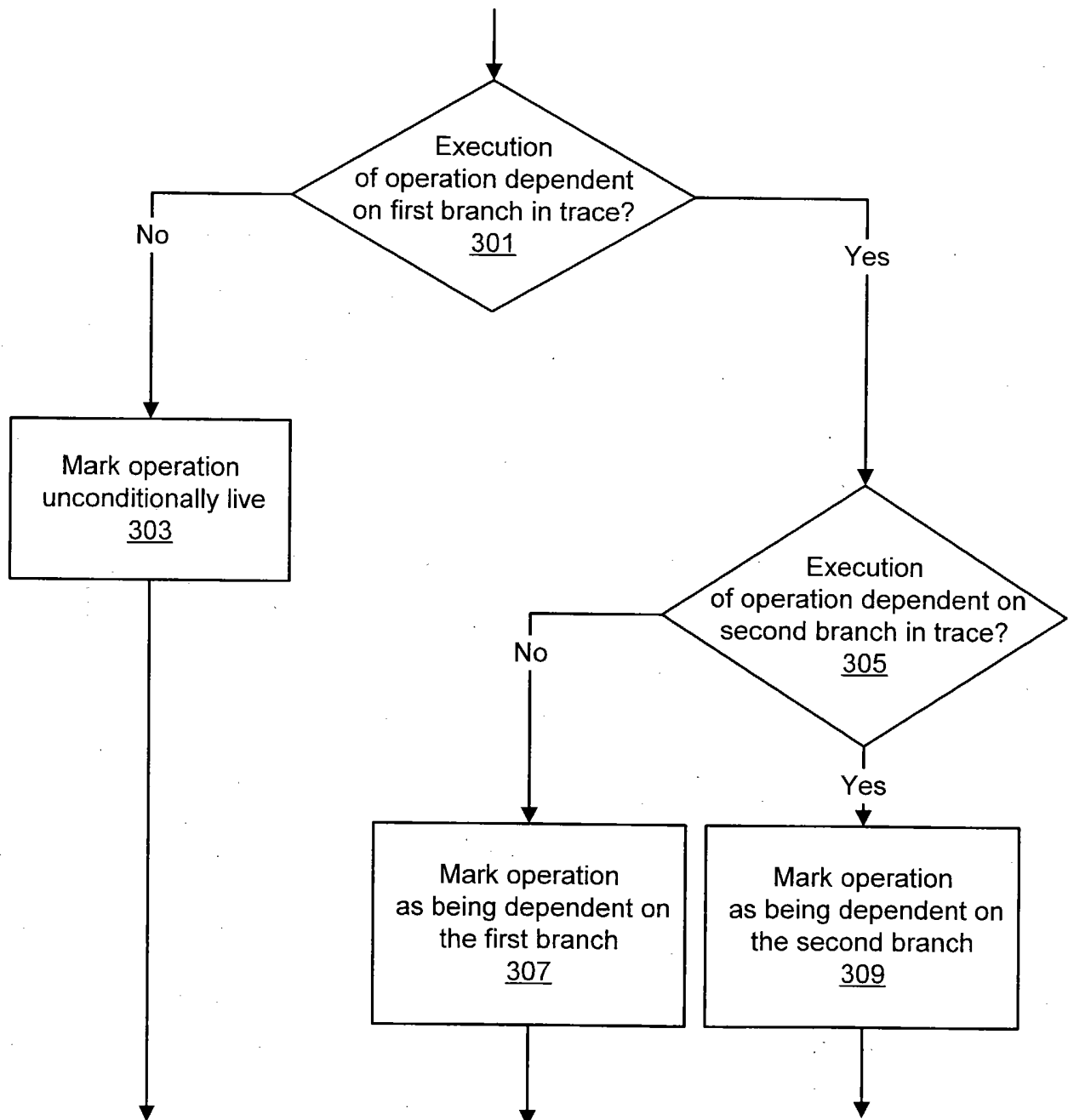


FIG. 3

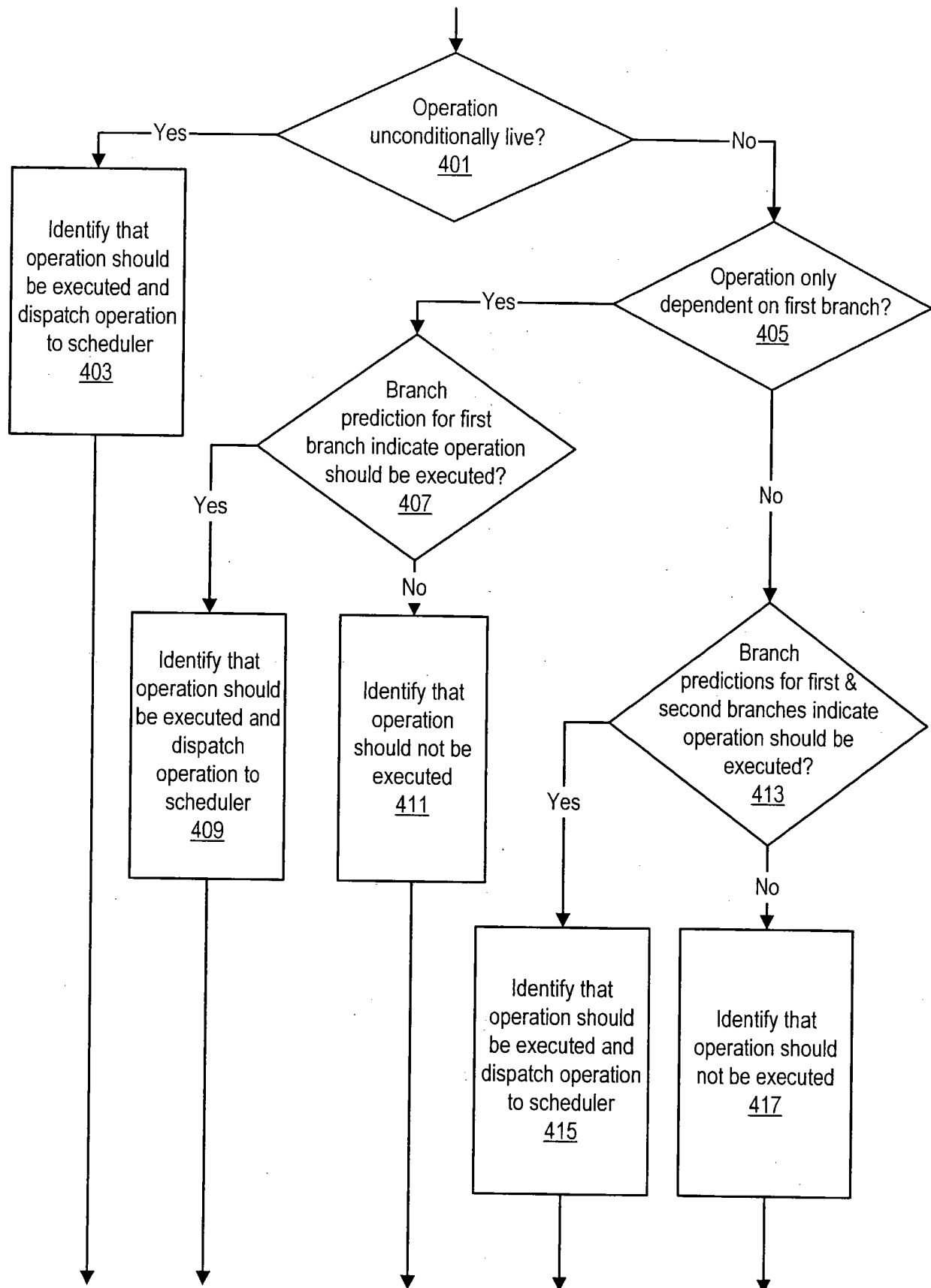


FIG. 4

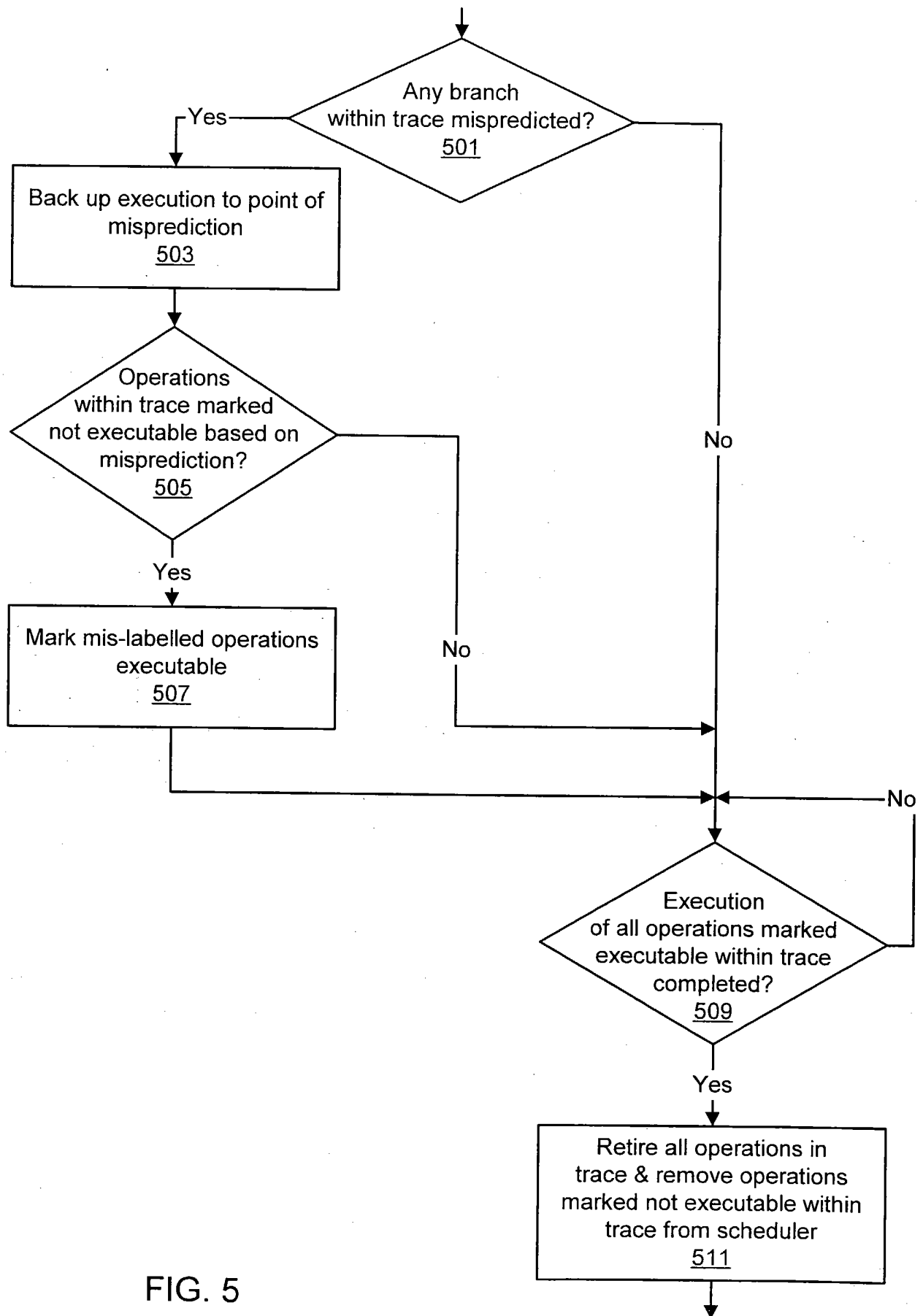


FIG. 5

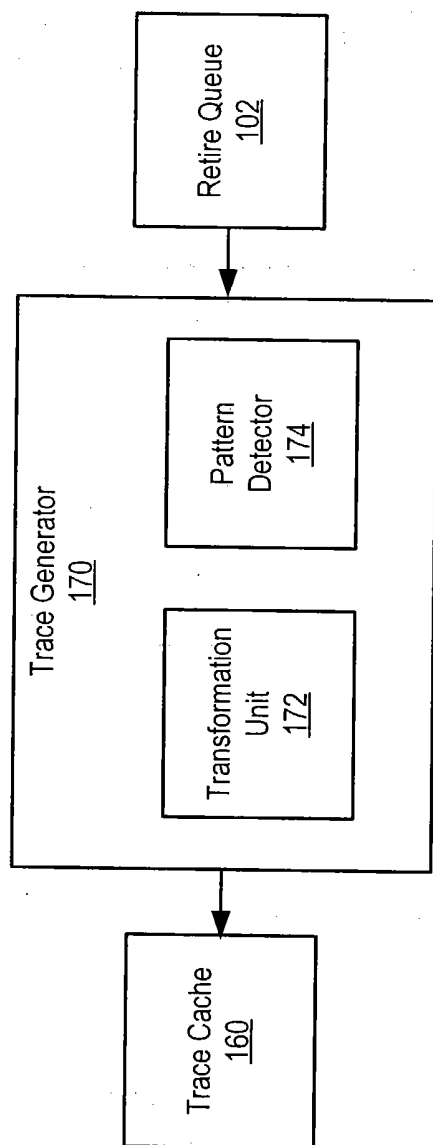


FIG. 6

Before Constant Propagation:

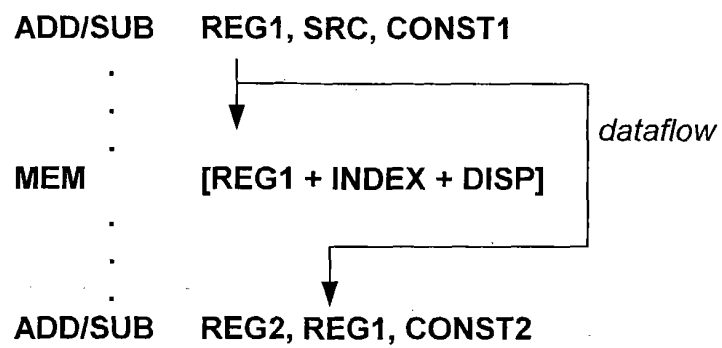


FIG. 7A

After Constant Propagation:

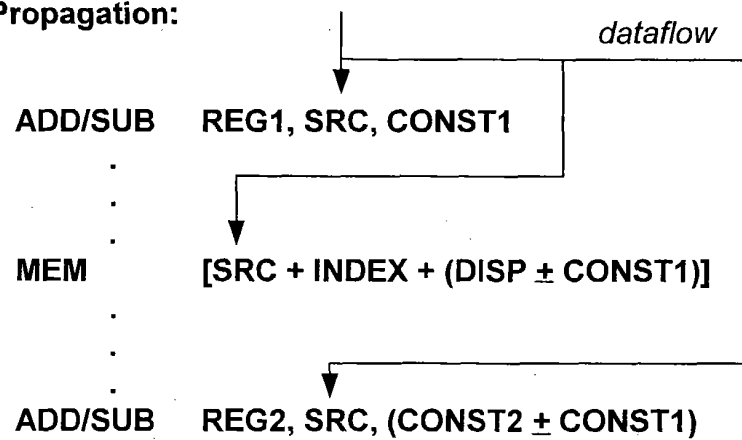
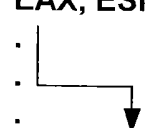


FIG. 7B

Before Move Renaming:

```
MOV EAX, ESI
.  
.  
.  
ADD EAX, EAX, 7
```



A vertical line of four dots connects the MOV instruction to the ADD instruction. A horizontal line branches from the second dot to the right, ending in an arrow pointing to the ADD instruction.

FIG. 8A

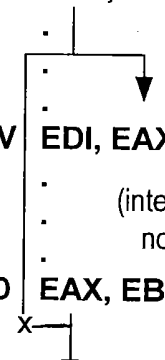
After Move Renaming:

```
ADD EAX, ESI, 7
```

FIG. 8B

Before Move Renaming:

```
ADD EAX, EAX, ESI
.  
.  
MOV EDI, EAX
.  
.  
ADD EAX, EBX, 2 (value in EAX destroyed)
```



A vertical line of five dots connects the first ADD instruction to the second ADD instruction. A horizontal line branches from the second dot to the right, ending in an arrow pointing to the MOV instruction. Another horizontal line branches from the fourth dot to the right, ending in an arrow pointing to the second ADD instruction. A small 'x' is placed at the start of this second horizontal line.

(intervening operations do not use value of EAX)

FIG. 9A

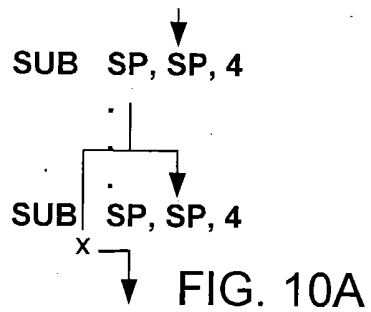
After Move Renaming:

```
ADD EDI, EAX, ESI
.  
.  
ADD EAX, EBX, 2
```

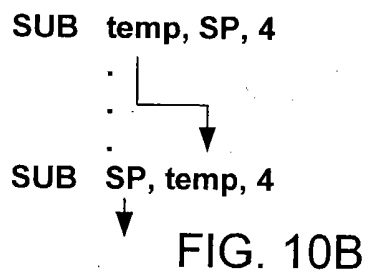
FIG. 9B



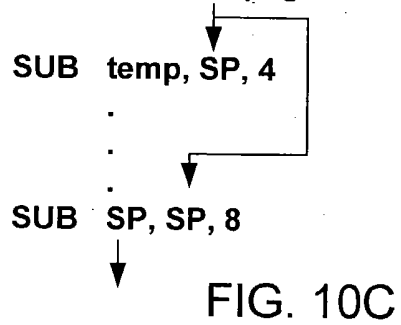
Before any transformations:



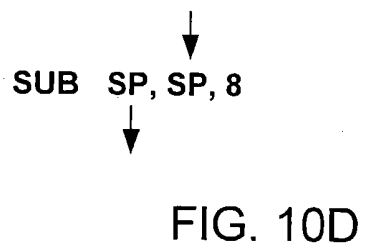
Slotification:



After Constant Propagation:



After Dead Operation Elimination:



**Before:**

**Op1   Sets condition code**  
    •   (intervening instructions do  
    •   not set condition code)  
    •  
**JNE   Label**

**FIG. 11A**

**After Branch Folding:**

**Op1   Sets condition code; fail if NE**

**FIG. 11B**

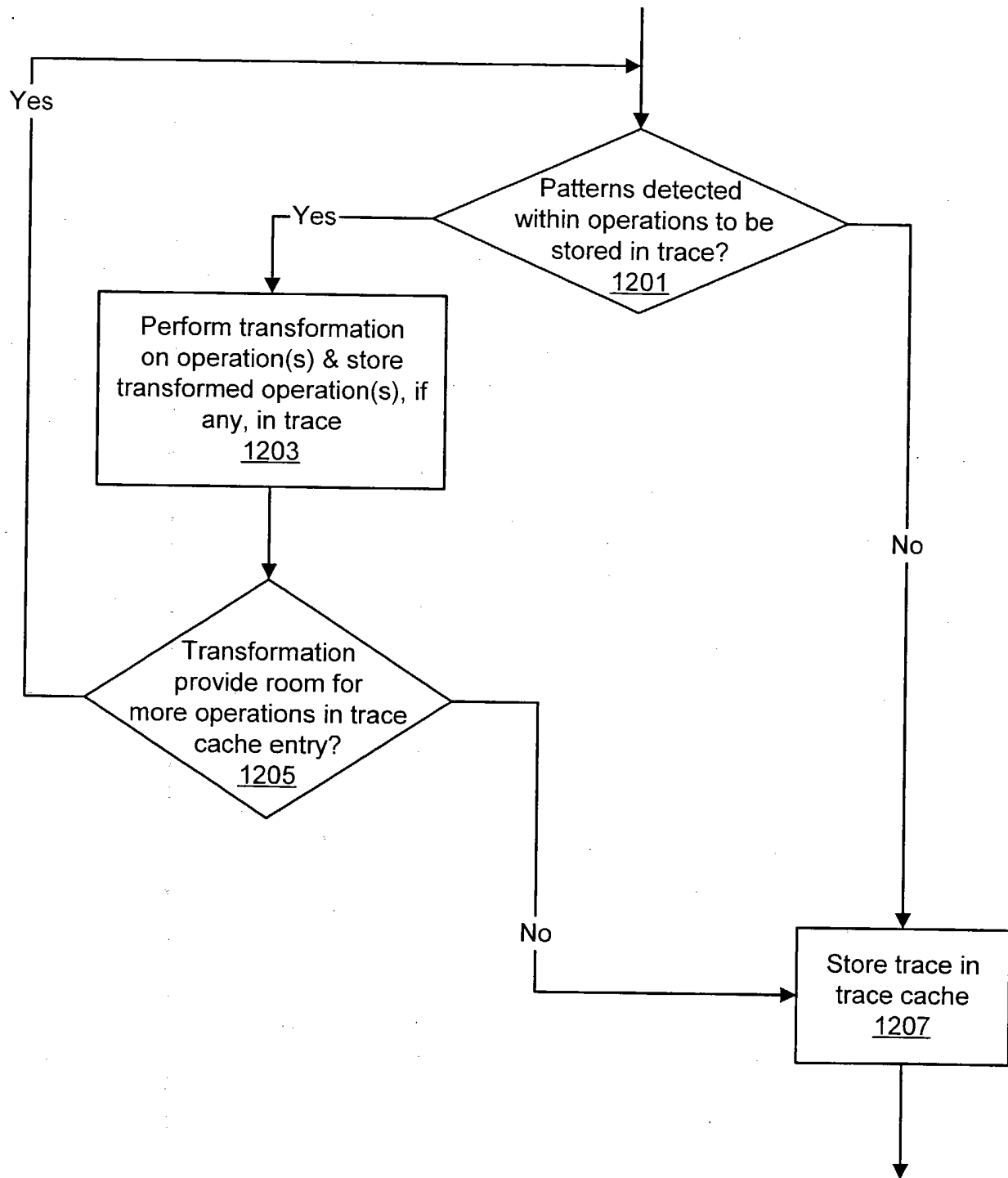


FIG. 12

**Instruction Stream:**

Instruction1  
Instruction2  
Instruction3  
Microcoded Instruction  
Instruction4  
Instruction5  
.  
.  
.

FIG. 13A

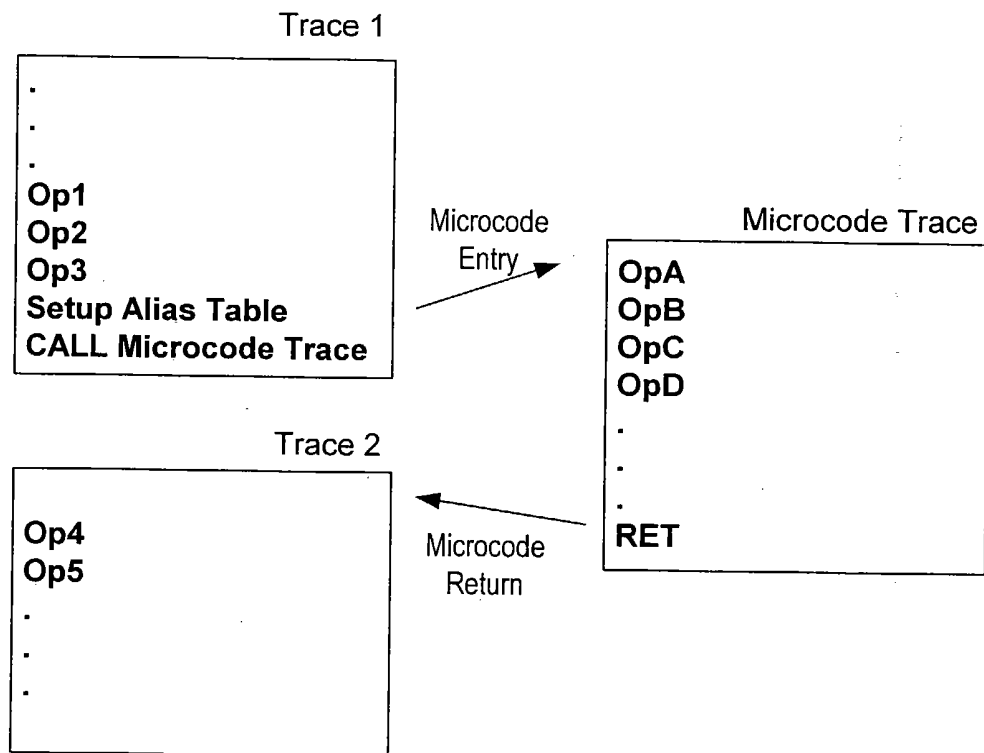


FIG. 13B

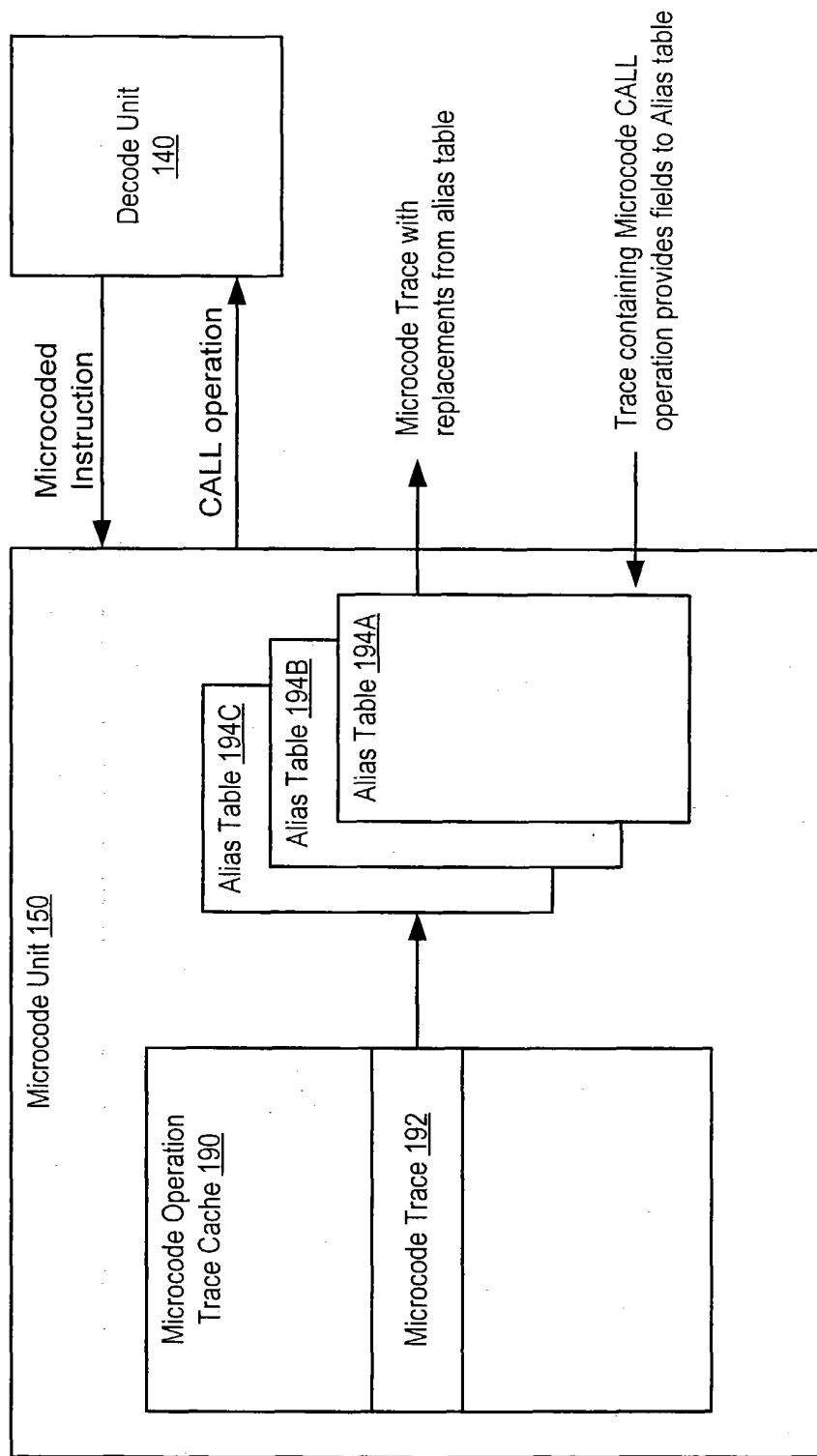


FIG. 13C

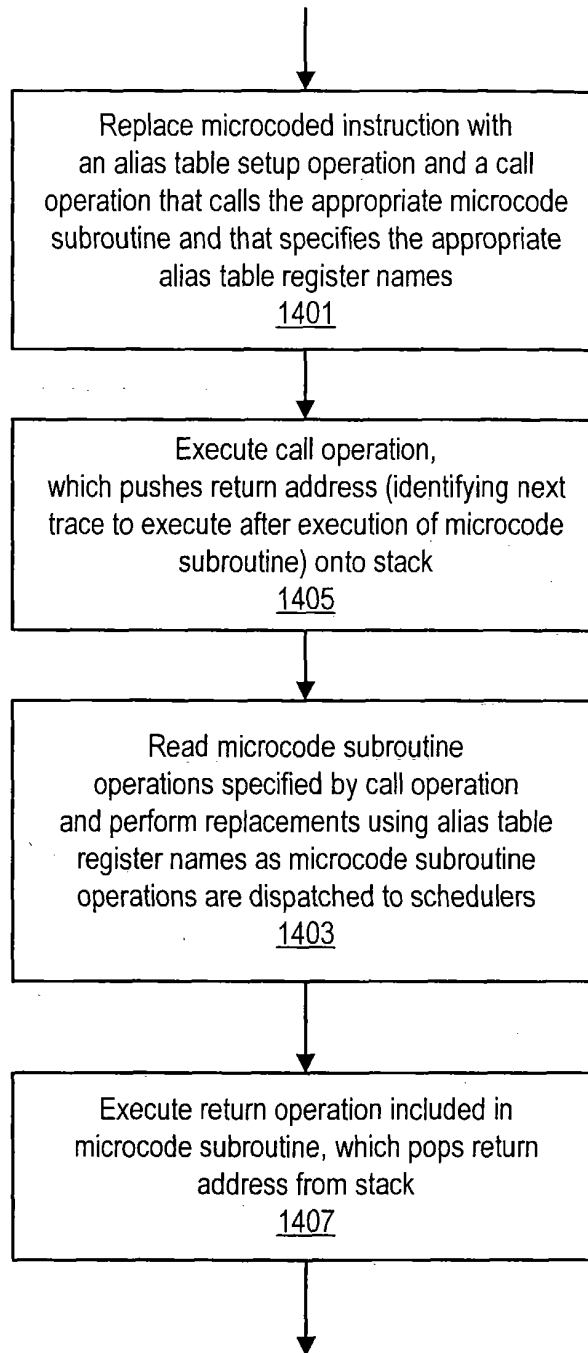


FIG. 14

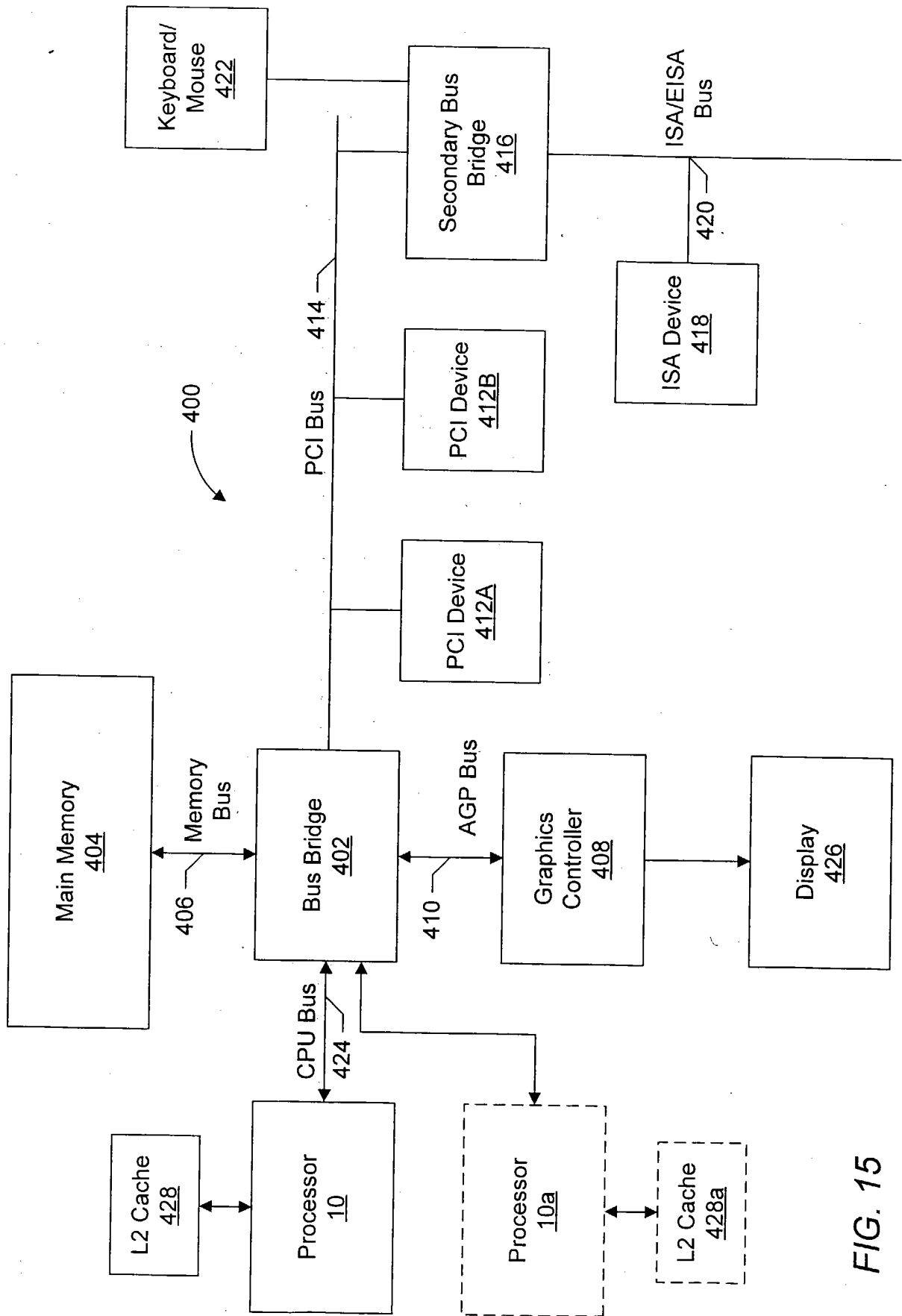


FIG. 15

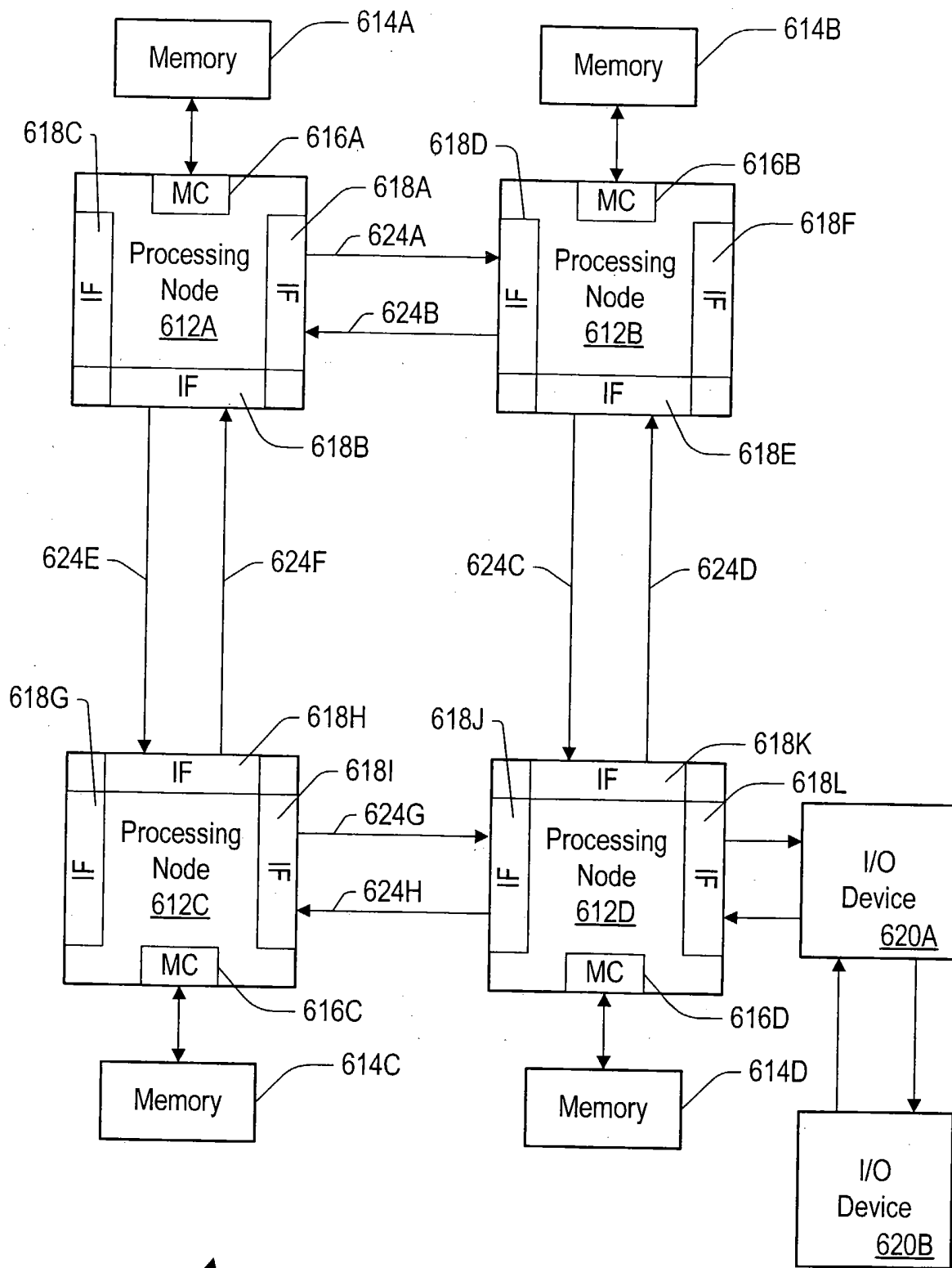


FIG. 16